

Tagged Grid Matching Based Object Detection in Wavelet Neural Network

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Abstract : Object detection using Wavelet Neural Network (WNN) plays a major contribution in the analysis of image processing. Existing cluster-based algorithm for co-saliency object detection performs the work on the multiple images. The co-saliency detection results are not desirable to handle the multi scale image objects in WNN. Existing Super Resolution (SR) scheme for landmark images identifies the corresponding regions in the images and reduces the mismatching rate. But the Structure-aware matching criterion is not paying attention to detect multiple regions in SR images and fail to enhance the result percentage of object detection. To detect the objects in the high-resolution remote sensing images, Tagged Grid Matching (TGM) technique is proposed in this paper. TGM technique consists of the three main components such as object determination, object searching and object verification in WNN. Initially, object determination in TGM technique specifies the position and size of objects in the current image. The specification of the position and size using the hierarchical grid easily determines the multiple objects. Second component, object searching in TGM technique is carried out using the cross-point searching. The cross out searching point of the objects is selected to faster the searching process and reduces the detection time. Final component performs the object verification process in TGM technique for identifying (i.e.,) detecting the dissimilarity of objects in the current frame. The verification process matches the search result grid points with the stored grid points to easily detect the objects using the Gabor wavelet Transform. The implementation of TGM technique offers a significant improvement on the multi-object detection rate, processing time, precision factor and detection accuracy level.

Keywords : Object Detection, Cross-point Searching, Wavelet Neural Network, Object Determination, Gabor Wavelet Transform, Tagged Grid Matching.

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